

ABSTRACT OF THE DISCLOSURE

A method and apparatus for electro-chemically depositing a metal onto a substrate. The apparatus generally includes a head assembly having a cathode and a wafer holder disposed above the cathode. The apparatus further includes a process kit disposed below the head assembly, the process kit including an electrolyte container configured to receive and maintain a fluid electrolyte therein, and an anode disposed in the electrolyte container. The apparatus further includes a power supply in electrical communication with the cathode and the anode, the power supply being configured to provide a varying amplitude electrical signal to the anode and cathode. The method generally includes providing an electrolyte container configured to receive and maintain a fluid electrolyte therein, the electrolyte container having an anode disposed within the electrolyte container, providing a head assembly positioned above the electrolyte container, the head assembly including a wafer holder for supporting a wafer and a cathode, and positioning a wafer in the electrolyte container in contact with the fluid electrolyte, and applying a varying amplitude waveform to the cathode and anode in an electroplating process.